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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/658,793	09/10/2003	Mark R. Frye	82058-0013	1829

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EXAMINER

PATEL, MITAL B

ART UNIT PAPER NUMBER

3743

DATE MAILED: 08/23/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/658,793

Applicant(s)

FRYE ET AL.

Examiner

Mital B. Patel

Art Unit

3743

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 13 June 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 22-66 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 22-66 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 13 June 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Response to Amendment/Arguments

1. Applicant's arguments with respect to claim 22 have been considered but are moot in view of the new ground(s) of rejection:

Claim Rejections - 35 USC § 112

2. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

3. Claim 36 is rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. The newly amended claim recites a specific range which was not disclosed in the specification as originally filed. Correction is required.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Art Unit: 3743

5. Claims 40-66 are rejected under 35 U.S.C. 103(a) as being unpatentable over Andonian (US 5,357,758) in view of Todd, Jr (US 6,446,630) and further in view of Leonard et al (US 4,211,086).

1. **As to claims 40 , 49 and 50**, Andonian teaches a portable, high-efficiency liquid oxygen (LOX) storage/delivery apparatus, comprising a portable LOX container **10**; a portable-unit LOX transfer connector **22** connected to said portable container and connectable to a main source (**See Col. 6, lines 66-68**) of LOX for transferring LOX to said portable container; a portable-unit oxygen gas transfer connector (**See Fig. 1, connector that connects tubing 73**) for transferring oxygen gas to an oxygen gas delivery device **84** for delivery. Andonian does not specifically teach a conserving device for LOX conservation which provides oxygen gas to said portable unit oxygen gas transfer connector. However, Todd, Jr. does teach the use of a conserving device so that there is not a waste of oxygen as there would be if the oxygen were supplied continuously (**See Col. 1, lines 64-67 and Col. 2, lines 1-22**). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to provide a conserving device in the LOX apparatus of Andonian as disclosed by Todd, Jr. so that oxygen is not wasted and is conserved. Andonian/Todd, Jr. teach essentially all of the limitations except for a demand flow control device coupled to a conserving device for adjustment of gas flow from said container to said delivery device. However, Leonard et al in a LOX breathing system teaches a demand flow control device **43,68** so that the user can control the flow of oxygen gas that is to be consumed. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to

Art Unit: 3743

provide a demand flow control device as taught by Leonard et al so that the user can control the flow of oxygen gas that is to be consumed. The above combinations teach essentially all of the limitations except for the liquid withdrawal warming coil located externally of the portable LOX container and the conserving device being integrated into the LOX apparatus. However, Applicant has not provided criticality in the specification as originally filled for these particular arrangements. One of ordinary skill in the art would have expected the above combination to function equally as well. Furthermore, Applicant has not provided a reasoned statement as to how the recited arrangement solves a stated problem, provides an advantage over the prior art or provides unexpected results.

6. **As to claim 41**, the above combination teaches an apparatus wherein said conserving device stops a flow of oxygen gas to said delivery device when a patient exhales (**See Col. 2, lines 4-9 of Todd, Jr.**).

7. **As to claim 42**, the above combination teaches an apparatus wherein oxygen gas accumulates in the conserving device when the patient exhales (**this would be an inherent property based on the disclosure of Todd, Jr. regarding the conserving device stopping flow of oxygen during exhalation**).

8. **As to claim 43**, the above combination teaches an apparatus wherein a puff of oxygen gas is delivered to said delivery device from said conserving device when the patient inhales (**See Col. 2, lines 6-9 with the Examiner interpreting a short duration oxygen dose to read on "a puff"**).

9. **As to claim 44**, the above combination teaches an apparatus wherein said conserving device delivers an even flow of oxygen gas to said delivery device after said puff and until the patient exhales again (**this can be inferred from the disclosure of Col. 2, lines 4-15**).

10. **As to claims 45-47**, conserving devices of the pneumatic type and electric type powered by batteries are known in the art (**See US 5,881,725, specifically Col. 1, lines 20-22 cited as extrinsic evidence**).

11. **As to claim 48**, the above combination teaches an apparatus wherein said conserving device delivers puffs of oxygen gas.

12. **As to claim 51**, Andonian teaches an apparatus further comprising an inter-unit oxygen gas transfer connector **46**.

13. **As to claim 52**, the above combination teaches an apparatus wherein said inter-unit oxygen gas transfer connector delivers oxygen gas to said conserving device.

14. **As to claim 53**, Andonian teaches an apparatus further comprising a check-valve **54** (**note the Examiner considers the "pressure relief valve to be equivalent in scope since the relief valve acts to "blow off" the gas at a certain pressure**).

15. **As to claim 54**, Andonian teaches an apparatus further comprising a liquid withdrawal conduit **18** and a gaseous withdrawal conduit **82**, which are in communication with the interior of said container.

16. **As to claim 55**, Andonian teaches an apparatus further comprising an economizer valve **88** for minimizing venting by balancing gaseous and liquid oxygen withdrawal from said portable LOX container for delivery to said conserving device.

Art Unit: 3743

17. **As to claim 56**, Andonian teaches an apparatus wherein said economizer valve **88** opens to allow oxygen gas from a gaseous head-space in said portable LOX container to pass through when the pressure of said oxygen gas in said portable LOX container exceeds a predetermined threshold level and otherwise is closed and allows oxygen gas from evaporated LOX to pass through (**See Col. 9, lines 4-59**).

18. **As to claim 57**, Andonian teaches an apparatus further comprising a liquid withdrawal conduit **18** and a gaseous withdrawal conduit **82**, which are in communication with the interior of said container.

19. **As to claim 58**, Andonian teaches essentially all of the limitations except for wherein an inner diameter of said liquid withdrawal warming coil is greater than the inner diameter of said liquid withdrawal conduit. However, Applicant on page 11, lines 5-6 discloses that the inner diameter of liquid withdrawal warming coil **may be** greater than that of the liquid withdrawal conduit, implying that such feature is not essential and/or necessary to the invention. Therefore, it would be obvious to one of ordinary skill in the art at the time of the invention that the liquid withdrawal warming coil as taught by Andonian would perform equally as well to withdraw the liquid.

20. **As to claim 59**, Andonian teaches an apparatus further comprising a portable-unit primary relief valve **86**.

21. **As to claim 60**, Andonian teaches an apparatus further comprising a vent valve **50**.

22. **As to claim 61**, Andonian teaches an apparatus wherein said vent valve may be open during filling of said portable LOX container (**See Col. 7, lines 1-3**).

Art Unit: 3743

23. **As to claim 62**, Andonian teaches essentially all of the limitations except for wherein said oxygen gas delivery device is a multi-lumen annular conduit. Rather, Andonian teaches a face mask as the oxygen gas delivery device. However, the use of a multi-lumen annular conduit such as a nasal cannula as an oxygen gas delivery device is old and well known in the respiratory art. Furthermore, it would have been obvious to one of ordinary skill in the art at the time of the invention to substitute the oxygen gas delivery device of Andonian with any other oxygen gas delivery device since the function of the oxygen gas delivery device (to deliver gas to the user) is not altered by the type of device used to delivery the oxygen gas.

24. **As to claims 63-66**, Andonian teaches essentially all of the limitations except for the specific weight, time, and rate as set forth in the recited claims. However, it would have been obvious to one of ordinary skill in the art at the time of the invention to arrive at the limitations set forth since these limitations will vary depending on the environment of use (e.g., mining, diving, at home therapy), the person using the device (e.g., miner, diver, elderly, firefighter), and the intended therapy.

Double Patenting

25. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double

Art Unit: 3743

patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

26. Claims 22-39 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 21, 29, 33, and 34 of U.S.

Patent No. 6,742,517 in view of Andonian (US 5,357,758) and Todd, Jr (US 6,446,630 and further in view of Leonard (US 4,211,086)

2. **As to claim 22 and 35 of the instant application**, essentially all of the limitations are found in claim 29 of the patent. However, the patent claim does not teach an economizer valve nor a conserving device. Andonian does teach the use of an economizer valve in a LOX system to move liquid and/or gas held inside the inner shell directly to the second exothermic heat energy conduction means when the internal pressure exceeds a predetermined level; i.e., the economizer valve serves as a bypass loop. Todd, Jr. does teach does teach the use of a conserving device so that there is not a waste of oxygen as there would be if the oxygen were supplied continuously (**See Col. 1, lines 64-67 and Col. 2, lines 1-22**). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to provide both an economizer valve and conserving device for the reasons set forth above as taught by Andonian and Todd, Jr. respectively to Frye et al..

3. **As to claim 23**, Andonian teaches an apparatus wherein said economizer valve **88** opens to allow oxygen gas from a gaseous head-space in said portable LOX container to pass through when the pressure of said oxygen gas in said portable LOX

container exceeds a predetermined threshold level and otherwise is closed and allows oxygen gas from evaporated LOX to pass through (**See Col. 9, lines 4-59**).

4. **As to claim 24 of the instant application**, the above combination teaches an apparatus further comprising a liquid withdrawal conduit and a gaseous withdrawal conduit which are in communication with the interior of said container.

5. **As to claim 25 of the instant application**, the above combination teaches an apparatus wherein in an inner diameter of said liquid withdrawal conduit is sized so that when said economizer valve is open, gaseous flow from the head-space of said portable LOX container is preferred over flow through said liquid withdrawal conduit

6. **As to claim 26 of the instant application**, the above combination teaches an apparatus further comprising at least one of a liquid withdrawal warming coil and a gaseous withdrawal warming coil.

7. **As to claim 27 of the instant application**, the above combination teaches essentially all of the limitations except for wherein an inner diameter of said liquid withdrawal warming coil is greater than the inner diameter of said liquid withdrawal conduit. However, Applicant on page 11, lines 5-6 discloses that the inner diameter of liquid withdrawal warming coil **may be** greater than that of the liquid withdrawal conduit, implying that such feature is not essential and/or necessary to the invention. Therefore, it would be obvious to one of ordinary skill in the art at the time of the invention that the liquid withdrawal warming coil as taught by Andonian would perform equally as well to withdraw the liquid.

8. **As to claim 28 of the instant application**, the above combination teaches an apparatus wherein said economizer valve further comprises a relief valve **86**.
9. **As to claim 29 of the instant application**, the above combination teaches an apparatus further comprising a vent valve **50**.
10. **As to claim 30 of the instant application**, the above combination teaches an apparatus wherein said vent valve may be open during filling of said portable LOX container (**See Col. 7, lines 1-3**).
11. **As to claim of the instant application**, the above combination teaches essentially all of the limitations except for a demand flow control device for adjustment of gas flow through said portable-unit oxygen gas transfer connector. However, Leonard et al in a LOX breathing system teaches a demand flow control device **43,68** so that the user can control the flow of oxygen gas that is to be consumed. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to provide a demand flow control device as taught by Leonard et al so that the user can control the flow of oxygen gas that is to be consumed.
12. **As to claim 32 of the instant application**, the above combination teaches essentially all of the limitations except for wherein said oxygen gas delivery device is a multi-lumen annular conduit. However, the use of a multi-lumen annular conduit such as a nasal cannula as an oxygen gas delivery device is old and well known in the respiratory art. Furthermore, it would have been obvious to one of ordinary skill in the art at the time of the invention to substitute the oxygen gas delivery device with any other oxygen gas delivery device since the function of the oxygen gas delivery device

Art Unit: 3743

(to deliver gas to the user) is not altered by the type of device used to delivery the oxygen gas.

13. **As to claim 33 of the instant application**, the above combination teaches an apparatus further comprising an inter-unit oxygen gas transfer connector **46**.

14. **As to claim 34 of the instant application**, the above combination teaches an apparatus further comprising a check-valve **54** (**note the Examiner considers the "pressure relief valve to be equivalent in scope since the relief valve acts to "blow off" the gas at a certain pressure**).

15. **As to claims 36-39 of the instant application**, the above combination teaches the various limitations either in the Andonian reference and/or in claims 29, 33, 34, and 35 of the patent.

Conclusion

16. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any


Art Unit: 3743

extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Mital B. Patel whose telephone number is 571-272-4802. The examiner can normally be reached on Monday-Friday (11:00-7:30).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Henry Bennett can be reached on 571-272-4791. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


Mital B. Patel
Examiner
Art Unit 3743